AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph at page 4, line 1, with the following rewritten paragraph:

Aberration correcting means such as an aberration compensator for compensating the aberration with respect to each of the data layers is required in the optical head device for use in recording/reproducing data on an optical disk having multiple data layers. The aberration correcting means is adapted to reduce the aberration, which is supposed to be generated in applying the focusing lens designed such that the aberration is set to 0 with respect to a specific substrate thickness, to a data layer having a substrate thickness different from the specific substrate thickness. The aberration correcting means is driven to minimize the aberration amount detected by the aberration detecting means provided in the optical head device. Let us assume an arrangement in which a third-order spherical aberration is to be detected, and the aberration correcting means is so designed as to reduce such a third-order spherical aberration. Such an arrangement makes it possible to set the third-order spherical aberration to 0 with respect to any data layer by controlling the aberration correcting means to make laser light incident on the focusing lens into converging light or diverging light. Despite such a merit, however, the above arrangement fails to set the total aberration including aberration of the fifth and higher orders to 0, with the total aberrations with respect to the data layers being different from each other. In this way, if the above proposed arrangement regarding aberration detection and aberration reduction is applied to the multi-layered optical disk having multiple data layers, a detected aberration amount and an actual aberration amount are different from each other. A similar drawback should be considered, as the order of aberration to be detected is raised from the fifth order to the seventh order or the like, as long as ~~un-detectable~~ undetectable aberration of a higher order remains. Therefore, the recording characteristics compensating method in which the output of the light source is controlled based on the detected aberration amount, as having been employed in the conventional art, fails to carry out optimum recording characteristics compensation, because output control is not executed when the detected aberration amount of a low order is 0 although there actually remain aberrations of a higher order which are different from each other with respect to the data layers. Furthermore, according to

the conventional method, ~~required is~~ information is required as to the layer number of the target data layer, in addition to information relating to the detected aberration amount, and it is required to optimize the recording power based on ~~these~~ such information. Thus, the conventional arrangement not only necessitates a program for learning a relation between the aberration amount and the optimum recording power with respect to each of the data layers, and for storing the learning results, but also makes the program complicated.

Please replace the paragraph at page 7, line 2, with the following rewritten paragraph:

In view of the above problems, an object of the present invention is to provide an optical head device, an optical recording device, and an optical recording method that enable ~~to acquire~~ acquisition of optimum recording characteristics of an optical recording medium having multiple data layers, with respect to each of the multiple data layers without increasing learning hours required for learning a relation between an aberration amount and an optimum recording compensation amount with respect to each of the multiple data layers.

Please replace the paragraph at page 12, line 5, with the following rewritten paragraph:

The driving amount to be sent from the aberration detecting means 12 to the driving means 7 varies depending on the substrate thickness of the optical recording medium 9. FIG. 3 is a graph showing a relation between the substrate thickness of the optical recording medium 9, and the driving amount to be sent to the driving means 7 in correspondence thereto. The substrate thickness differs depending on ~~from~~ which ~~or in which~~ layer data is to be read from or written to by the optical head device 101, namely, on which data layer 9a, 9b, or 9c, the spot of focus light is to be irradiated. In view of this, as the data layer for data reading/writing is changed, the focusing lens 8 is moved forward or backward along the optical axis of the lens in such a manner as to follow the change of the data layer by focus control, which will be described later. Aberration, however, is not eliminated even by such a focus control. As exemplified in FIG. 3, even if the spherical aberration of the detected order with respect to the substrate thickness corresponding to the data layer 9b is 0 at the driving amount of 0, a certain driving amount is required to drive the wavefront converting means

7 if the target data layer is changed, because spherical aberration of the detected order is generated as the target data layer is changed, and driving of the wavefront converting means 7 is required to compensate for such spherical aberration. The wavefront converting means 7 is driven in such a direction as to cause diverging light to be incident on the focusing lens 8, as the target data layer is shifted in such a direction as to increase the substrate thickness, whereas the wavefront converting means 7 is driven in such a direction as to cause converging light to be incident on the focusing lens 8, as the target data layer is shifted in such a direction as to decrease the substrate thickness.

Please replace the paragraph at page 21, line 3, with the following rewritten paragraph:

Alternatively, separating the driving amount into a high frequency component of a significantly small value, and a direct current component of a significantly large value enables ~~to utilize~~ utilization of circuit configurations suitable for the respective components. Further alternatively, it may be possible to calculate the product of the high frequency component and the direct current component by applying a weighting factor either to the high frequency component or the direct current component, in place of calculating the product while setting the ratio of the high frequency component to the direct current component to 1:1.

Please replace the paragraph at page 21, line 21, with the following rewritten paragraph:

FIG. 9 is an illustration showing an arrangement of an optical head device in accordance with a second embodiment of the present invention. Referring to FIG. 9, elements identical to or equivalent to those in FIG. 1 are denoted ~~at~~ by the same reference numerals, and description thereof will be omitted herein. Wavefront converting means 14 shown in FIG. 9 is constructed such that a liquid crystal device 61 is provided between electrodes 62a and 62b. As is well known, the phase of linear polarized light can be changed by applying a voltage to the liquid crystal device. Accordingly, spherical aberration can be corrected by providing well-known coaxially aligned annular electrodes as the electrodes 62a, 62b, and by changing the drive voltage to be applied to each of the annular electrodes. Likewise, as is well known in the art, a coma aberration can be corrected

by dividing each of the annular electrodes radially into plural zones. Since the optical head device 102 in accordance with the second embodiment of the present invention employs the wavefront converting means 14 provided with the liquid crystal device 61 as mentioned above, the optical head device 102 enables ~~to lower~~ lowering of the power consumption, as well as ~~to correct~~ correction of coma aberration.